

## **S.W.A.T.**

- **Rise of the near peer (i.e., China)**
- **China withdraws from WTO & GATT**
- **China claims military buildup necessary for sustained development (i.e., in order to secure access to resources)**
- **Taiwan remains an issue**
- **U.S. forces are primarily based on U.S. territory**
- **U.S. maintains widespread international interests**



**Many participants believed the military could move toward this future without the rise of a near peer as the result of budget decisions.**

S.W.A.T remains on the state-to-state side of the framework but moves from a homeland defense to an overseas focus. This future is one in which the darkest fears of those who worry about China come true.

Although some participants doubted that China would ever justify its military by claiming it was a guarantor for secure access to resources, few challenged the notion that China's appetite for natural resources will continue. China already consumes 40% of the world's cement, 33% of its cotton, 27% of its steel, 23% of its lead, 20% of its copper, 18% of its soy beans, 18% of its wheat, 17% of its aluminum, and 12% of its oil. Although China has large coal reserves, it currently cannot produce enough to meet its demand.

We selected the acronym S.W.A.T. (which in police circles stands for Special Weapons and Tactics) to represent this alternative future because it conjures up the picture of a garrisoned military force that waits for something bad to happen then surges to confront it.

Several participants pointed out that external factors may not be what drives the U.S. into this quadrant—it may be constraints on the defense budget. Recent decisions by naval leadership suggest surge strategies are on the rise.

## On the Beat

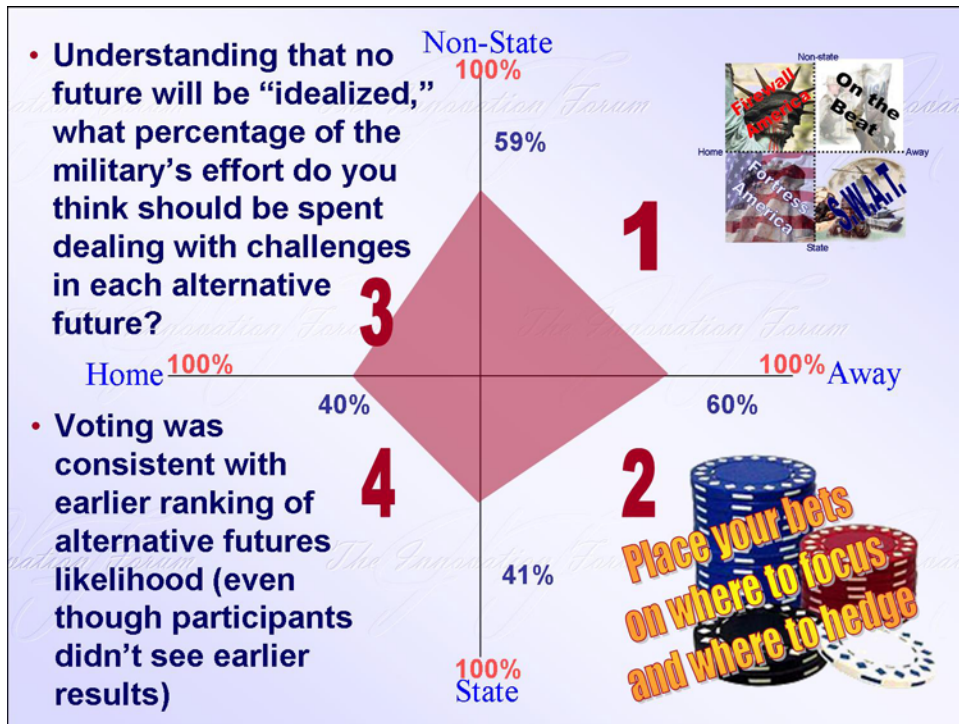
- Global war on terrorism continues
- Globalized world working in concert to maintain economic growth
- Military is more focused on overseas operations than homeland defense (although HD remains an important part of a layered defense)
- Intelligence cooperation is good
- Peacetime engagement activities play an important strategic role
- U.S. forces are routinely deployed or based overseas



On the Beat (another police analogy) reflects a future in which military forces are engaged in the world much as they are today. This quadrant can also be used to explore the upside of military engagement, the maintenance of peace and security essential to social and economic progress, not just the ability to coerce and destroy.



When participants were asked to rank the futures in order of likelihood, they clearly believed America and its military would stay engaged in the world. The future they believed least likely to emerge was Fortress America. The numbers in brackets indicate the average score each future obtained, “1” being most likely.



As noted earlier, these alternative futures were never intended to be predictive. They were designed to be extreme so that whatever future does emerge is contained somewhere within the framework.

Participants were asked to create a “footprint” of what the actual future might look like. They were asked to use their best judgment to predict how much of each quadrant would be contained in that future.

Participants were free to vote 100% in any direction on the axes, but they generated a footprint that showed preferences, not extremes. Participants would invest slightly more in programs that deal with non-state actors overseas than in programs focused on the rise of a peer or on protecting America’s borders.

Navy leaders draw their own footprint when they make acquisition choices. It would be educational to have senior naval leadership complete this exercise, then compare it to budgetary decisions.



## Implications

- **America will [must] stay engaged in the world and security planning should be centered on that engagement**
- **U.S. should maintain a hedge force sufficiently large to discourage competition**
- **Super-empowered individuals will take their place alongside states, international organizations, transnational corporations, etc.**



Participants' preference for dealing with challenges far from America's borders is a continuation of a long-held American position. The fact that the Navy is developing strategies and forces to surge forward from domestic bases, rather than remain forward deployed, is counter to that tradition.

The fact that participants leaned towards focusing on non-state actors reflected more the reality of the continuing war on terror than it did a belief that the rise of a peer could be ignored. In fact, the 60/40 split was viewed as a solid vote for maintaining a sufficiently large hedge force to discourage peer competition. Part of that discussion, however, revealed a belief that this strategy would only work if U.S. foreign policy made it clear that U.S. power was a force for good and one not easily committed. If a future peer believes that U.S. force is aimed directly and menacingly at it, then an arms race will inevitably result.

Finally, participants believed that super-empowered individuals (to use a Thomas Friedman term) will remain a permanent feature of the security landscape. Some of them, like Nobel Peace Laureate Jody Williams who almost singlehandedly brought nations together to ban landmines, will push idealistic, peaceful agendas. Others, like Osama bin Laden, will continue to push destructive, warlike agendas. The point is, these individuals must be taken seriously. Although their presence does not diminish the role of the state, states must learn to deal with them.

# Emerging Questions

- How large should a hedge or “Leviathan” force be?
- How would an engagement or “system administration” force differ from today’s military?
- How should the Government reorganize to facilitate more efficient interagency operations?
- What kind of public/private partnerships can be developed to help secure the desired future?



Alternative futures discussions should help decision makers answer the questions posed in this slide. Those looking for immediate, specific answers regarding strategy or force structure may find this process frustrating. However, those who understand that future planning is about making informed choices and hedging against risks find broad discussions like these very enlightening. Any decisions they make following such a process will be better grounded in analysis of future possibilities.

# Today's Discussion

- **Why an Innovation Forum? Why your reaction and insights?**
- **Exploring the international security environment**

OSD planning framework & Alternatives Futures

- **Indicators and Implications**

**Scenario Dynamics Grid**

**Near Certainties – Critical Uncertainties –  
Strategic Choices**

- **Digging Deeper:** personnel, training, education, economics, leadership, shore facilities, fleet infrastructure, materiel, doctrine, & organization

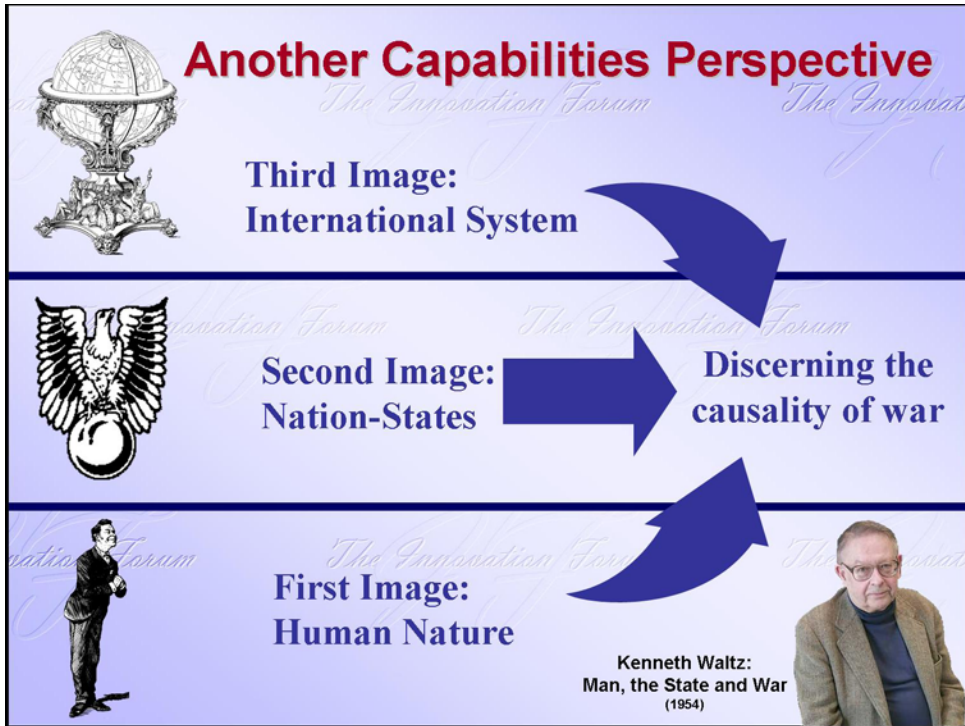
Self-explanatory



## Imagining the Future

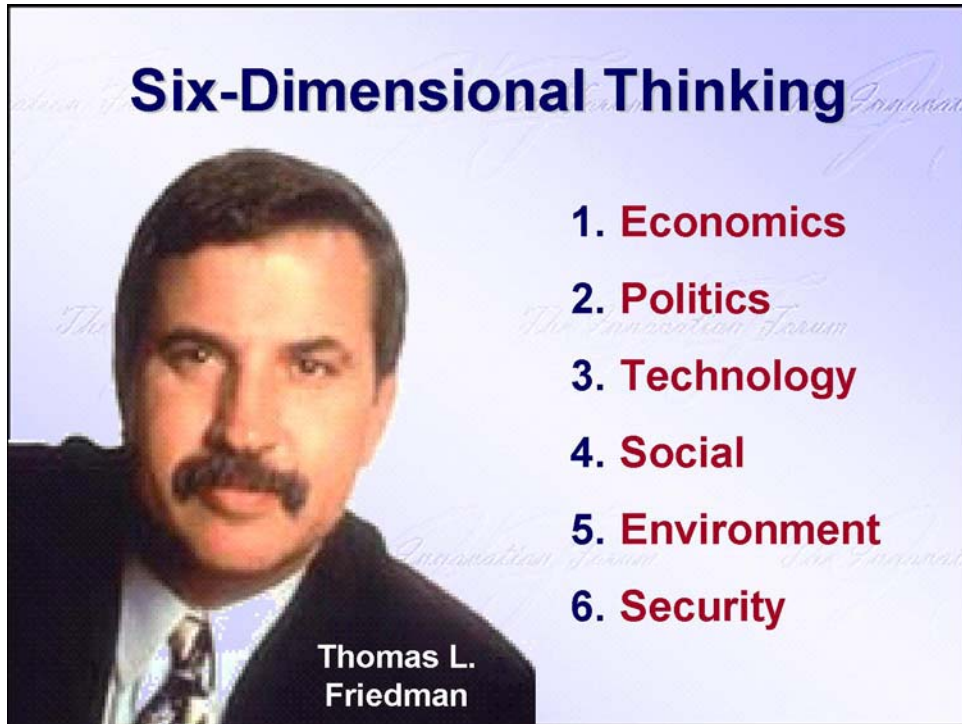
One good way to get people to imagine a future that is not simply an extrapolation of the present is to force them to look at it from as many perspectives as possible.

Alternative futures, of course, are only one tool for getting people to think broadly about the future. There are other methods to force people to consider the future from different perspectives. The following slides show another method used in the workshop.







Earlier, we introduced Kenneth Waltz's paradigm, which considers challenges from three different perspectives.





Thomas Friedman, a columnist for *The New York Times*, in his best seller *The Lexus and the Olive Tree*, views the world through six lenses: economics, politics, technology, social, environment, and security.

|                | Economics | Politics | Technology | Social | Environment | Security |
|---|-----------|----------|------------|--------|-------------|----------|
| <br>System     |           |          |            |        |             |          |
| <br>State      |           |          |            |        |             |          |
| <br>Individual |           |          |            |        |             |          |





**Waltz meets  
Friedman**

Thomas Barnett merged the two methods into a matrix he calls a Scenario Dynamics Grid. This grid is very useful for forcing people to think outside of their comfort zone.

|            | Economics  | Politics | Technology | Social | Environment | Security |
|------------|--|----------|------------|--------|-------------|----------|
| System     |  |          |            |        |             |          |
| State      |  |          |            |        |             |          |
| Individual |  |          |            |        |             |          |

**Headlines provide you with markers along the path to various possible futures**

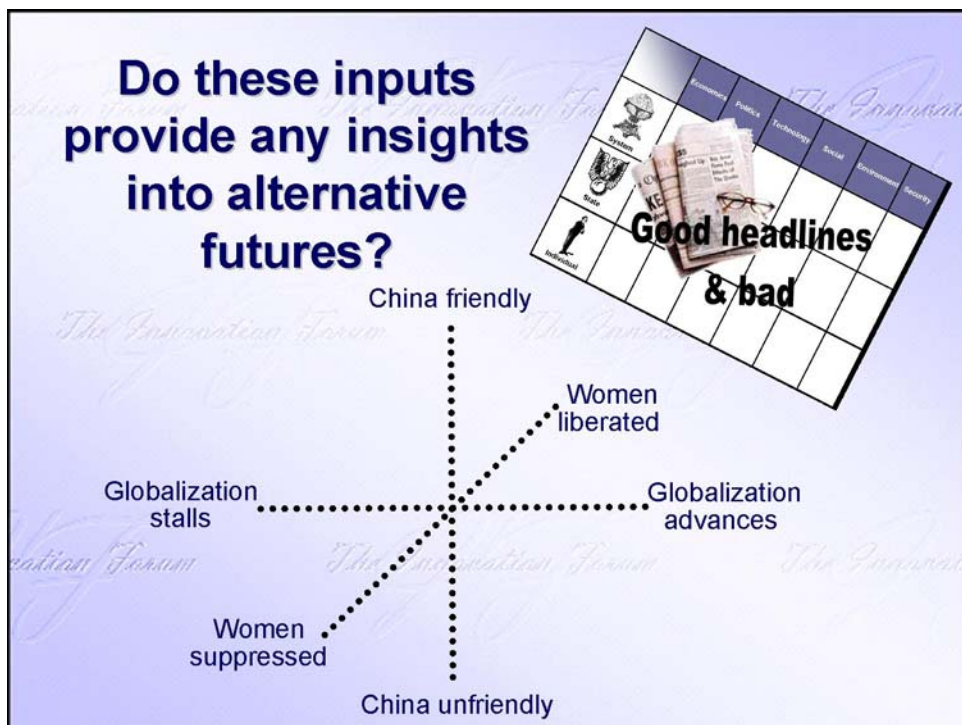
By asking participants to consider each box separately, then to write a “good” headline and a “bad” headline that describes a future situation, a grid can be generated that describes milestones leading to various potential futures.

|                | Economics  | Politics  | Technology  | Social  | Environment   | Security   |
|---|--|---|---|---|---|--|
| <br>System     | Barrels of oil priced in Chinese Yuan  | New permanent members selected for UN Security Council              | Break-through in alternative energy spurs global economy            | Global interactions increasingly occur in virtual world, known as "metaverse" | Consequences of global warming reach tipping point, mitigation top priority | Asian Security Group organized                               |
| <br>State      | Int'l business competes for employees in world wide market place. Best minds won't/can't move to US. | French Secular (Christian) / Muslim Civil War spreads across Europe | Millions starve yet genetically altered foods rejected              | President delivers State of the Union address in Spanish                      | Increased demand for alternative power generation & hybrid cars             | US/China in standoff over future of Taiwan                   |
| <br>Individual | Healthier workforce remains active, works longer, and saves more                                     | Dramatic rise in women's suffrage noted                             | Number of U.S. PhDs awarded in physical sciences lowest in 20 years | Americans join global commute in search of jobs                               | Developing countries gain upper hand against malaria & other diseases       | Congress passes law requiring National ID cards for everyone |

This grid presents a sampling of “good” and “bad” headlines generated by Forum participants entering ideas anonymously using groupware.

In some cases, such as pricing oil in Chinese currency rather than in dollars or having the President deliver his state-of-the-union address in Spanish, participants differed as to whether the news should be considered “good” or “bad.”

There was insufficient time at the Innovation Forum to go through this process for each of the four alternative futures identified earlier, which would have produced highly textured scenarios. Nonetheless, our abbreviated exercise yielded a diverse array of possible future milestones and deepened participants’ understanding of where current trends may lead.



Several major themes emerged from discussion at the Forum. In particular, participants noted that the way certain indicators unfold will reveal a lot about whether there will be a stable and peaceful future.

First, how the relationship between China and the U.S. develops will have an enormous impact. A non-aggressive but economically competitive China would take its place alongside other economic giants like Germany and Japan. Should China decide to go it alone, however, a new era of strategic competition is likely.

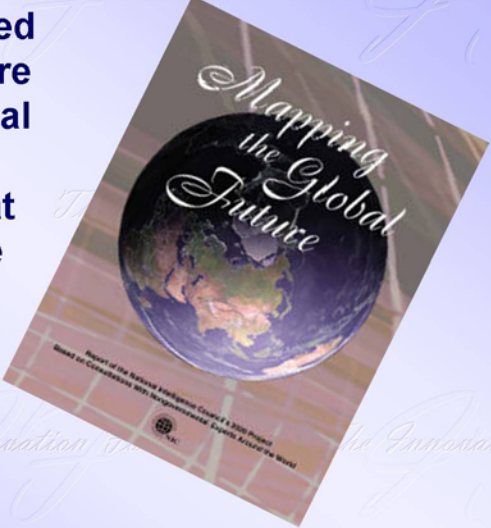
Second, the continued progress of globalization, although there will doubtless be hills and valleys, provides the best hope of raising the quality of life around the world. If it stalls, billions are likely to be plunged even more deeply into poverty and hopelessness.

Finally, the chances of poor nations emerging out of poverty or despotic governments adopting liberal democratic principles are negligible as long as half their population is repressed. If we see sweeping improvements in how women are treated (suffrage, property rights, etc.), it will be a good indicator that the world is moving in the right direction.



**Participants were asked what they thought were near **certainties**, critical **uncertainties**, and **strategic choices** that will shape the future**

**Their insights were in line with the latest analysis from the National Intelligence Council**



Innovation Forum participants independently came to many of the same conclusions found in the National Intelligence Council's *Mapping the Global Future*. For example, the NIC agrees that globalization is largely irreversible even if it becomes less Westernized; that non-state actors have growing power; and that great power conflict escalating into total war is unlikely, but that insecurity will nevertheless remain pervasive.

Other similarities and differences will be highlighted in the slides that follow.

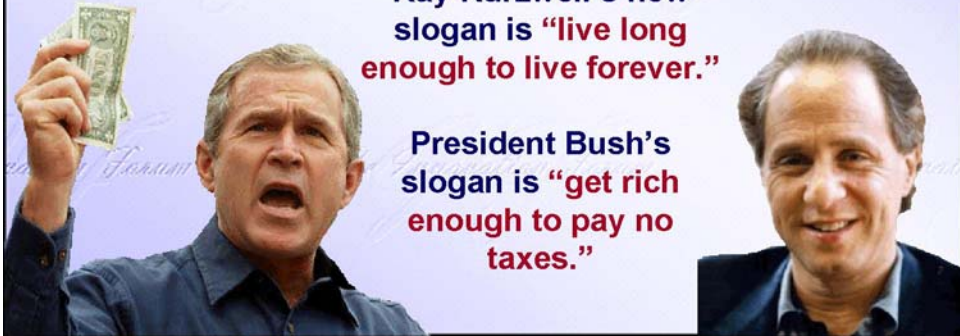
# Near Certainties

**Participants found it very difficult to differentiate between certainties, trends, and speculations.**

**The two traditional certainties—death and taxes—are even in question.**

**Ray Kurzweil's new slogan is "live long enough to live forever."**

**President Bush's slogan is "get rich enough to pay no taxes."**



What the Innovation Forum process calls “near” certainties, the NIC labels “relative” certainties. Participants discovered that there are few certainties in life. The NIC identified thirteen “relative certainties.” Forum participants raised almost all the same issues, with the exception of the rise of economic middle weights and a belief that energy supplies are sufficient to meet global demand. Participants also raised a number of issues not addressed by the NIC since they were asked to suggest issues in each of Tom Friedman’s six areas.

## Economic Trends

- **Increased economic competition will occur**
- **Emerging markets will receive renewed international focus**
- **Globalization is largely irreversible and will become less Westernized**



Innovation Forum participants conducted lengthy discussions about economic competition, especially between China and the United States. India also figured prominently in the discussions. The NIC agrees that China's GNP will likely overtake Europe's by 2020 and that India's will be approaching Europe's.

Forum discussions about new markets focused more on the vast number of people living in poverty, who at some level are nevertheless consumers. Participants noted that Hernando de Soto believes that the key to improving the lot of the poor (and thus generating the wealth necessary to attract investment) is formalized property laws that provide the poor a stake in the future. The NIC document does not address the abjectly poor but does discuss the rise of economic "middle weight" nations.

Forum participants and the NIC believe that globalization is "a force so ubiquitous that it will substantially shape all the other major trends in the world of 2020."

## Political Trends

- **Non-state actors will remain permanent fixtures on global stage**
- **International organizations remain essential for international trade and development**
- **Viable third party will emerge in the U.S.**



Forum participants and the NIC believe non-state actors are here to stay. These actors range from the super-empowered individuals discussed previously to transnational corporations. Participants noted that not all non-state push criminal or disruptive agendas.

The NIC report states that the “United States increasingly will have to battle world public opinion” if it maintains its current positions about “the environment and climate change, privacy, cloning and biotechnology, human rights, international law regulating conflict, and the role of multilateral institutions.” Most Forum participants doubted the U.S. could achieve its goals unilaterally and they understood that most of the rest of the world still believes international organizations have a place.

The NIC document did not address domestic politics, but Forum participants did. The political bifurcation of America that was so evident in the 2004 elections prompted several participants to posit the rise of a third party although they disagreed as to its nature. Those who believed the Republican and Democratic parties provide no real differences asserted the third party would be more radical than either of them. Those who believed the two parties were becoming too extreme anticipate the rise of moderate party.



# Technological Trends

- **The U.S. will lose its technological edge**
- **Bio-science becomes the technology of the 21st century**
- **Some of [the] greatest technological advances will come from [the] intersection of biotech and nanoscale engineering**



Participants believed the U.S. would lose its technological edge because it is not educating enough scientists and engineers. "In the year 2000 U.S. graduated about 6% of the total annual world "output" of first professional degrees in engineering and 12% of degrees in the natural sciences. ... Asian PhDs are now being earned at a pace that is at least double U.S. PhDs." ("Global and national change in students and graduates [high school to Ph.D.] affecting engineering education: key challenges facing engineering educators," Myles Boylan, former CASEE Scholar-in-Residence, current NSF program officer, presented at the Dane and Mary Louise Miller Symposium and First CASEE Annual Meeting, 20 October 2004) The NIC partially agrees, stating that by 2020 Asia will have a "greater S&T stature" than the United States with China and India "well positioned to become technology leaders." Nevertheless, it asserts "the United States is still in a position to retain its overall lead."

Because continued improvement in information technologies is generally taken as a given, and its implications widely studied, participants concentrated on other technologies that have not yet matured but hold the promise of radically changing the future. The two most often mentioned were bio- and nano-technologies. The NIC agrees that the "next revolution in high technology [will involve] the convergence of nano-, bio-, information and materials technology." While the NIC believes that "genetically modified organisms and increased food production could provide a safety net eliminating the threat of starvation and ameliorating basic quality of life issues for poor countries," participants believed that many bio-technology breakthroughs would only benefit the rich.

Several participants believed that useful nano-technology products are far in the future. However, according to a new report from Lux Research entitled "Sizing Nanotechnology's Value Chain," sales of products incorporating nanotechnology will rise from less than 0.1% of global manufacturing output today to 15% in 2014, totaling \$2.6 trillion. This value will approach the size of the information technology and telecom industries combined, and will be 10 times larger than biotechnology revenues. It also is reported that by 2014 ten million manufacturing jobs worldwide — 11% of total manufacturing jobs — will involve building products that incorporate emerging nanotechnology. Additionally, nanotechnology will shift market shares and introduce unconventional competitors, and supply chains will simplify as highly functional materials eliminate steps in manufacturing processes. These are just a few reasons why it is so important to stay ahead of the nano-curve."





Aging populations are considered about as close to being a certainty for much of the world as participants were willing to come. Forum participant discussions and the NIC report both raised the challenges of aging populations on economies, healthcare, immigration policies, etc. Life expectancy in many African nations, however, is decreasing due to AIDs, tuberculosis, malaria, etc.

Participants also asserted that religion will continue to be a global force. While many developed states are becoming less religious, evangelists have brought mostly fundamentalist versions of their religions to the developing world.

Participants noted that means that the advancement of women's rights in these countries is likely to lag, undermining attempts to "shrink the gap." The NIC report asserts "new forms of identity politics centered on religious convictions," especially political Islam, will put pressure on governments.

Urbanization was addressed because it too affects how the future will unfold. Participants noted that urban populations now outnumber rural populations. Job creation will mostly be found in cities and they will become the centers of gravity for consumerism. Basic needs can be provided to urban dwellers more efficiently than to rural residents, and urban dwellers tend to be bigger consumers because they are wealthier, better educated, and have fewer children. Close proximity to others, however, also makes urban populations more vulnerable to perturbations (be they blackouts or epidemics).

## Environmental Trends

- **Growing resource shortages (fossil fuel, water, food)**
- **Global warming will continue**
- **Pandemics (or other natural disasters) will adversely affect global economy**



The National Intelligence Council predicts the “Energy supplies ‘in the ground’ [will be] sufficient to meet global demand” over the next 15 years, but Forum participants were looking beyond that timeframe and were not so sanguine. China is concerned and has become extremely active in concluding long-term deals to secure oil.

Participants were also concerned with food and water, topics the NIC document barely touched. The NIC indicated that bio-technology could help resolve food issues but was silent on water. Recent news articles have discussed the possibility that the next international cartel will be one that distributes water. Some participants believed that technology would solve the water crisis.

Whether for natural or manmade reasons, participants agreed that global warming is likely to continue. The drawbacks or benefits (as some claim) of this trend remain hotly debated, with scientists and capitalists the parties most likely to square off. The NIC noted that America was likely to find itself facing strong public criticism for its stands on such issues.

Some participants pointed out that the 2004 Tsunami demonstrated the threat posed by natural disasters unassociated with climate change. The earlier 2003 SARS scare and current worries about avian flu indicate that widespread disease also remains a threat.

# Security Trends

- **Wars will not end**
- **Biometrics will replace traditional forms of ID**
- **Cyber security will be just as important as border security**



As noted earlier, Forum participants and the National Intelligence Council both believe that “Great power conflict escalating into total war is unlikely.”

Participants did not believe, however, that wars will end, and as noted above the NIC believes instability will be widespread over the next couple of decades, a view shared by most Forum participants.

The NIC also noted that the Global War on Terror will continue. Participants predicted that security measures required to keep populations safe could have the concomitant ill effect of clogging transportation hubs as people and goods wait to be cleared. This could create an enormous tension between security needs and economic needs (i.e., globalization can only advance if the flow of goods and people moves apace). Some participants predicted that biometrics would become the most accepted method of identification in the not too distant future.

Participants stressed throughout the workshop that networks created new vulnerabilities for society in general and the military in particular. Participants pointed out that during the pre-industrial age security focused on maintaining sovereign borders. During the industrial age economic security became as important as border security. In the information age, cyber security has taken its place alongside other prominent security concerns.

## Critical Uncertainties

**Participants had less trouble coming up with major questions about the future than they'd had with "near certainties"**



Self-explanatory.